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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,099	01/21/2004	Charles Frank	119127-160997	7524

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EXAMINER
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DILLON, SAMUEL A

ART UNIT	PAPER NUMBER
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2185

MAIL DATE	DELIVERY MODE
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11/26/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/763,099

**Applicant(s)**

FRANK ET AL.

**Examiner**

SAMUEL DILLON

**Art Unit**

2185

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CD/CC)  
Paper No(s)/Mail Date 9/29/08
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

#### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 8, 2008 has been entered. Per the amendment, Claims 1-16 have been cancelled and Claims 17-43 have been added.

#### **I. ACKNOWLEDGEMENT OF INFORMATION DISCLOSURE STATEMENT**

2. The information disclosure statement (IDS) submitted on September 29, 2008 is in compliance with the provisions of 37 CFR 1.97. As required by M.P.E.P. ' 609 (C), the applicant's submission of the submitted IDS is acknowledged by the examiner and the cited references have been considered in the examination of the claims now pending. As required by M.P.E.P. ' 609 C(2), a copy of the PTOL-1449 initialed and dated by the examiner is attached to the instant office action.

#### **II. RESPONSE TO AMENDMENT(S) / ARGUMENT(S)**

3. The Examiner notes that all previously rejected claims have been cancelled. In response to the amendment, the 35 U.S.C. 103(a) rejections of Claims 1-16 as stated in the previous action are withdrawn.

4. Applicant's arguments with respect to the teachings of Wang, Anderson, Kim and Lin have been fully considered but they are **moot** in view of the new grounds of rejection below.

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5. Regarding all other Claims not specifically traversed above and whose rejections were upheld, the Applicant contends that the listed claims are allowable by virtue of their dependence on other allowable claims. As this dependence is the sole rationale put forth for the allowability of said dependent claims, the Applicant is directed to the Examiner's remarks above. Additionally, any other arguments the Applicant made that were not specifically addressed in this Office Action appeared to directly rely on an argument presented elsewhere in the Applicant's response that was traversed, rendered moot or found persuasive above.

### **III. REJECTIONS BASED ON PRIOR ART**

#### **Claim Rejections - 35 USC '102 - Wang**

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 17-43** are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al. (*US Patent 6,834,326*).

8. As per **Claim 17**, Wang disclose(s) a storage appliance comprising: a network interface (*RAID controller/switch, more specifically the switch functionality, figure 5*); and a controller (*RAID controller/switch, more specifically the RAID controller functionality, figure 5*) **configured to** (*interpreted as intended use, see MPEP 2106 II[C]*) provide a root partition (*filesystem or virtual disk, column 8 lines 56-63*) defining a plurality of characteristics (*column 9 lines 13-42*) of a redundant array (RA) group that includes a

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plurality of RA partitions (*RAID volumes, figure 5, column 8 lines 42-54*), **to** (*interpreted as intended use, see MPEP 2106 II[C]*) provide a RA partition of the plurality of RA partitions (*services a read request, column 8 lines 42-54*), **to** (*interpreted as intended use, see MPEP 2106 II[C]*) receive, via the network interface, a data access command multicast to the plurality of RA partitions (*column 8 lines 42-54*), and **to** (*interpreted as intended use, see MPEP 2106 II[C]*) determine that the data access command pertains to the RA partition based at least in part on the plurality of characteristics (*the controller/switch determines the underlying network, column 9 lines 13-22*).

9. As per **Claim 18**, Wang disclose(s) the storage appliance of **Claim 17**, wherein the controller is further **configured to** (*interpreted as intended use, see MPEP 2106 II[C]*) receive, via the network interface, a plurality of partition commands (*read requests of the nested controller, figure 6, column 8 lines 56-64*) from a host (*the parent controller, figure 6*); and **to** (*interpreted as intended use, see MPEP 2106 II[C]*) provide the root partition and the RA partition based at least in part on the plurality of partition commands (*servicing the read request to the parent controller, column 8 lines 56-64*).

10. As per **Claim 19**, Wang disclose(s) the storage appliance of **Claim 17**, wherein the plurality of characteristics includes a multicast set associated with the RA group (*column 9 lines 32-42*).

11. As per **Claim 20**, Wang disclose(s) the storage appliance of **Claim 19**, wherein the controller is **configured to** (*interpreted as intended use, see MPEP 2106 II[C]*) receive a multicast set command (*write command to the nested controller, figure 6*) from a host (*parent controller, figure 6*) via the network interface, and **to** (*interpreted as intended use, see MPEP 2106 II[C]*) establish the multicast set associated with the RA group based at least in part on the multicast set command (*writing to the controller will modify the controller's storage, figure 6*).

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12. As per **Claim 21**, Wang disclose(s) the storage appliance of Claim 17, wherein the data access command is multicast to the plurality of RA partitions using an Internet Protocol address (*column 8 lines 31-41*).
13. As per **Claim 22**, Wang disclose(s) the storage appliance of Claim 17, wherein the controller is further **configured to** (*interpreted as intended use, see MPEP 2106 II[C]*) receive, via the network interface, another data access command multicast to the plurality of RA partitions (*write received and then multicast, column 12 lines 56-67*); **to** (*interpreted as intended use, see MPEP 2106 II[C]*) receive, via the network interface, a response to the another data access command (*multiack's are sent back in response, column 12 lines 56-67*); and **to** (*interpreted as intended use, see MPEP 2106 II[C]*) disregard the another data access command based at least in part on the response (*column 12 lines 65-67*).
14. As per **Claim 23**, Wang disclose(s) the storage appliance of Claim 17, wherein the root partition includes a type of the RA group (*column 9 lines 32-42*).
15. As per **Claim 24**, Wang disclose(s) the storage appliance of Claim 23, wherein the type is a stripe and the root partition further includes a length of the stripe (*column 9 lines 32-35*).
16. As per **Claim 25**, Wang disclose(s) the storage appliance of Claim 17, wherein the root partition includes a parity rule (*RAID level includes parity, col. 9 lines 32-42*).
17. As per **Claim 26**, Wang disclose(s) the storage appliance of Claim 17, wherein the plurality of RA partitions are associated with a plurality of logical block addresses (LBAs) and the controller is further **configured to** (*interpreted as intended use, see MPEP 2106 II[C]*) calculate, based at least in part on the plurality of characteristics of the RA group defined in the root partition, which LBAs of the plurality of LBAs are associated with the RA partition (*column 17, lines 47-54*).

18. As per **Claim 27**, Wang disclose(s) the storage appliance of **Claim 17**, wherein the controller is **configured to** (*interpreted as intended use, see MPEP 2106 II[C]*) receive the data access command from a host and the controller is further **configured to** (*interpreted as intended use, see MPEP 2106 II[C]*) transmit, via the network interface, data directly to another RA partition of the plurality of RA partitions based at least in part on the data access command (*standard NetSCSI, column 11 lines 63-67*).

19. As per **Claim 28**, Wang disclose(s) a method comprising: providing a root partition (*filesystem or virtual disk, column 8 lines 56-63*) associated with a redundant array (RA) group that includes a plurality of RA partitions, providing a RA partition of the plurality of RA partitions (*RAID volumes, figure 5, column 8 lines 42-54*), receiving, via the network interface, one or more commands from a host (*column 8 lines 42-54*); and providing the root partition and the RA partition based at least in part on the received one or more commands (*servicing the read request to the parent controller, column 8 lines 56-64*).

20. As per **Claim 29**, Wang disclose(s) the method of **Claim 28**, further comprising: receiving, via a network interface, a data access command multicast to the plurality of RA partitions (*column 8 lines 42-54*), and determining that the data access command pertains to the RA partition based at least in part on the plurality of characteristics (*the controller/switch determines the underlying network, column 9 lines 13-22*).

21. As per **Claim 30**, Wang disclose(s) the method of **Claim 29**, wherein the plurality of characteristics includes a multicast set associated with the RA group (*column 9 lines 32-42*).

22. As per **Claim 31**, Wang disclose(s) the method of **Claim 29**, wherein the RA command is multicast to the plurality of RA partitions using an Internet Protocol address (*column 8 lines 31-41*).

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23. As per Claim 32, Wang disclose(s) the method of Claim 29, further comprising: receiving, via the network interface, another data access command multicast to the plurality of RA partitions (*write received and then multicast, column 12 lines 56-67*); receiving, via the network interface, a response to the another data access command (*multiack's are sent back in response, column 12 lines 56-67*); and disregarding the another data access command based at least in part on the received response (*column 12 lines 65-67*).
24. As per Claim 33, Wang disclose(s) the method of Claim 28, wherein the root partition includes a type of the RA group (*column 9 lines 32-42*).
25. As per Claim 34, Wang disclose(s) the method of Claim 33, wherein the type is a stripe and the root partition further includes a length of the stripe (*column 9 lines 32-35*).
26. As per Claim 35, Wang disclose(s) the method of Claim 28, wherein the root partition includes a parity rule (*RAID level includes parity, col. 9 lines 32-42*).
27. As per Claim 36, Wang disclose(s) a machine-accessible storage medium having instructions, which, then executed, results in the machine: providing a root partition (*filesystem or virtual disk, column 8 lines 56-63*) defining a plurality of characteristics of a redundant array (RA) group that includes a plurality of RA partitions (*RAID volumes, figure 5, column 8 lines 42-54*), providing a RA partition of the plurality of RA partitions, receiving, via a network interface, a data access command multicast to the plurality of RA partitions (*column 8 lines 42-54*), and determining that the data access command pertains to the RA partition based at least in part on the plurality of characteristics (*the controller/switch determines the underlying network, column 9 lines 13-22*).
28. As per Claim 37, Wang disclose(s) the machine-accessible storage medium of Claim 36, wherein the instructions, when executed, further results in the machine:



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receiving, via the network interface, one or more commands from a host; and providing the root partition and the RA partition based at least in part on the received one or more commands (*servicing the read request to the parent controller, column 8 lines 56-64*).

29. As per Claim 38, Wang disclose(s) the machine-accessible storage medium of Claim 36, wherein the plurality of characteristics includes a multicast set associated with the RA group (*column 9 lines 32-42*).

30. As per Claim 39, Wang disclose(s) the machine-accessible storage medium of Claim 36, wherein the data access command is multicast to the plurality of RA partitions using an Internet Protocol address (*column 8 lines 31-41*).

31. As per Claim 40, Wang disclose(s) an apparatus comprising: a network interface (*RAID controller/switch, more specifically the switch functionality, figure 5*); and a controller (*RAID controller/switch, more specifically the RAID controller functionality, figure 5*) **configured to** (*interpreted as intended use, see MPEP 2106 II[C]*) transmit, via the network interface, a first partition command to establish a root partition on a storage appliance (*column 9 lines 13-22, lines 32-42*); **to** (*interpreted as intended use, see MPEP 2106 II[C]*) transmit, via the network interface, a plurality of characteristics of a redundant array (RA) group that includes a plurality of RA partitions to be stored in the root partition (*column 9 lines 13-22, lines 32-42*); **to** (*interpreted as intended use, see MPEP 2106 II[C]*) transmit, via the network interface, a second partition command to establish a RA partition of the plurality of RA partitions, on the storage appliance (*column 9 lines 13-22, lines 32-42*).

32. As per Claim 41, Wang disclose(s) the apparatus of Claim 40, wherein the controller is further **configured to** (*interpreted as intended use, see MPEP 2106 II[C]*) transmit a partition command to each of a plurality of storage appliances to establish the plurality of RA partitions (*column 9 lines 13-22, lines 32-42*).

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33. As per **Claim 42**, Wang disclose(s) the apparatus of Claim 40, wherein the controller is further **configured to** (*interpreted as intended use, see MPEP 2106 II[C]*) multicast, via the network interface, a packet to the plurality of RA partitions, the packet having a data access command and a logical block address (LBA) to which the data access command pertains (*column 11 lines 63-67, column 17, lines 47-54*).

34. As per **Claim 43**, Wang disclose(s) the apparatus of Claim 42, wherein the controller is **configured to** (*interpreted as intended use, see MPEP 2106 II[C]*) multicast the packet by being configured to transmit the packet with a multicast Internet Protocol address (*column 11 lines 63-67*).

#### **IV. CLOSING COMMENTS**

##### **a. STATUS OF CLAIMS IN THE APPLICATION**

35. The following is a summary of the treatment and status of all claims in the application as recommended by M.P.E.P. ' 707.07(i):

##### **a(1). CLAIMS NO LONGER IN THE APPLICATION**

36. Claims 1-16 were cancelled by amendment.

##### **a(2). CLAIMS REJECTED IN THE APPLICATION**

37. Per the instant office action, Claims 17-43 have received an action on the merits and are subject of a non-final action.

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**b. DIRECTION OF FUTURE CORRESPONDENCES**

38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Dillon whose telephone number is 571- 272-8010.

The examiner can normally be reached on 9:30-6:00.

39. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sanjiv Shah can be reached on 571-272-4098. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

**IMPORTANT NOTE**

40. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SAD/

Sam Dillon  
Examiner  
Art Unit 2185

/Sanjiv Shah/  
Supervisory Patent Examiner, Art Unit 2185